

SPECIFICATION

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METHODS AND SYSTEMS FOR GENERATING ENHANCED THUMBNAILS USABLE FOR DOCUMENT NAVIGATION

Cross Reference to Related Applications

This non-provisional application is related to co-pending non-provisional applications by the same inventors, entitled "METHODS AND SYSTEMS FOR GENERATING ENHANCED THUMBNAILS", "METHODS AND SYSTEMS FOR TRANSITIONING BETWEEN THUMBNAILS AND DOCUMENTS BASED UPON THUMBNAIL APPEARANCE" and "METHODS AND SYSTEMS FOR DOCUMENT NAVIGATION USING ENHANCED THUMBNAILS", all filed on even date herewith and identified by Attorney Docket Nos. 108762, 110268 and 110269, respectively.

Background of Invention

Field of Invention

[0001] This invention relates to a method and systems for document navigation using enhanced thumbnails.

Description of Related Art

[0002] Computer users spend a significant amount of time examining collections of documents, such as documents retrieved by a search engine from the Internet. The user must page through lists of documents, briefly evaluating each for possible relevance to a particular information need. Improving the efficiency of this tedious process would directly benefit the end-user and, by improving end-user

satisfaction, would indirectly benefit parties such as the search engine vendor.

[0003] For instance, the Internet search engine can increase user efficiency by (1) returning higher-quality document lists (e.g., through better index coverage and ranking algorithms) or by (2) providing information that allows the user to evaluate the results more quickly and accurately. Search engine vendors attack both problems. The standard practice with regard to approach (2) is to provide brief textual summaries of the Web documents. In recent years, in addition to textual summaries of documents, it has been suggested that graphical summaries of the documents, such as thumbnail images, can greatly increase the efficiency by which end-users process search engine result sets.

[0004] Each of these approaches has advantages and disadvantages. For example, text summaries are terse but are verbal rather than visual. They require little storage space and can therefore be downloaded quickly. Additionally, text summaries often contain a great deal of valuable information about each document. For example, search engines commonly provide the document's URL, header, size, and a few phrases or sentences that either summarize the document or emphasize some of the search keywords. On the other hand, text summaries do not provide much information about the page layout or any image contained in the page. Furthermore, the user must read the text summary, which is time consuming and tiring.

[0005] In contrast, graphical summaries do provide information about the layout, genre, and style of the page. If the user has previously seen the page, or one like it, the visual representation may aid in recognizing or classifying it. This becomes even more compelling in view of the fact that the human visual system can process images more quickly than text. Graphical information can speed many tasks tremendously. However, thumbnails typically require more storage space than text summaries, and therefore, they generally download more slowly than text summaries. Further, textual content in plain thumbnails is less accessible than that in text summaries, as it is difficult to read and is not conveniently summarized.

[0006] Previous work includes several different designs for thumbnails. A number of